

## PMComanchePekNPEm Resource

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**From:** Monarque, Stephen  
**Sent:** Monday, September 28, 2009 12:04 PM  
**To:** Robinson, Edward  
**Subject:** FW: Comanche Peak RCOL Section 13.3 - RAI # 88  
**Attachments:** RAI 3183 (RAI 88).doc

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**From:** Monarque, Stephen  
**Sent:** Saturday, September 26, 2009 12:41 PM  
**To:** Donald.Woodlan@luminant.com; John.Only@luminant.com; 'cp34-rai-luminant@mnes-us.com'; Diane Yeager; Eric.Evans@luminant.com; joseph tapia; 'Kazuya Hayashi'; Matthew.Weeks@luminant.com; MNES RAI mailbox; 'Russ Bywater'  
**Cc:** Ward, William; ComanchePeakCOL Resource  
**Subject:** Comanche Peak RCOL Section 13.3 - RAI # 88

The NRC staff has identified that additional information is needed to continue its review of the combined license application. The NRC staff's request for additional information (RAI) is contained in the attachment. Luminant is requested to inform the NRC staff if a conference call is needed.

The response to this RAI is due within 37 calendar days of September 26, 2009.

Note: If changes are needed to the safety analysis report, the NRC staff requests that the RAI response include the proposed changes.

thanks,

Stephen Monarque  
U. S. Nuclear Regulatory Commission  
NRO/DNRL/NMIP  
301-415-1544

**Hearing Identifier:** ComanchePeak\_COL\_NonPublic  
**Email Number:** 1070

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**Subject:** FW: Comanche Peak RCOL Section 13.3 - RAI # 88  
**Sent Date:** 9/28/2009 12:04:18 PM  
**Received Date:** 9/28/2009 12:04:20 PM  
**From:** Monarque, Stephen

**Created By:** Stephen.Monarque@nrc.gov

**Recipients:**  
"Robinson, Edward" <Edward.Robinson@nrc.gov>  
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**Post Office:** HQCLSTR02.nrc.gov

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RAI 3183 (RAI 88).doc	57850	

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Request for Additional Information (RAI) No. 3183

RAI # 88

9/26/2009

Comanche Peak Units 3 and 4  
Luminant Generation Company, LLC.  
Docket No. 52-034 and 52-035  
SRP Section: 13.03 - Emergency Planning  
Application Section: Part 5 Emergency Planning

QUESTIONS for Licensing and Inspection Branch (NSIR/DPR/LIB) (EP)

13.03-17

**ETE-1: Estimated Population Growth**

Acceptance Criteria: NUREG-0800, Standard Review Plan (SRP), Section 13.3, "Emergency Planning," Requirements A and H; Acceptance Criterion 11  
Regulatory Basis: Regulatory Guide 1.206, Appendix 4 to NUREG-0654 Section II.A.

- A. Population estimates in the evacuation time estimate (ETE) were based on data from the 2000 U.S. Census and projected to the year 2007 using census growth rate projections. In combined license application (COLA), Part 5, Table 3-1, "EPZ Permanent Resident Population by Zone," the 2007 Population is 33,435. The 2007 population in Table 3-1 differs from the Comanche Peak Nuclear Power Plant Units 3 and 4 COL Application Environmental Report (ER) Table 2.5-1, "The Projected Permanent Population for Each Sector 0-16 Km (10 mi) for Years 2007, 2016, 2026, 2036, 2046, and 2056," and the Final Safety Analysis Report (FSAR) Table 2.1-202, "Projected Permanent Population for Each Sector 0-16 Km (10 mi) for Years 2007, 2016, 2026, 2036, 2046, and 2056," which provides a 2007 population of 32,451. Discuss the differences in permanent population growth estimates between the values provided. Revise the ETE report as needed.

13.03-18

**ETE-2: ETE Methodology**

Acceptance Criteria: NUREG-0800, Standard Review Plan (SRP), Section 13.3, "Emergency Planning," Requirements A and H; Acceptance Criterion 11  
Regulatory Basis: Appendix 4 to NUREG-0654 Section I.C.

- A. COLA, Part 5, ETE Report, Section 4, "Estimation of Highway Capacity," describes the approach for estimating highway capacity and provides the algorithm and equation used for the approach to a signalized intersection. Explain how the variables are derived for the Mean Duration of Green Time and Mean Queue Discharge for the capacity of an approach to a signalized intersection.
- B. Discuss how traffic control is included in the intersection analysis using the equation presented on COLA, Part 5, page 4-1.
- C. COLA, Part 5, ETE Report, Appendix D, "Detailed Description of Study Procedure," identifies the steps to perform the ETE calculations. Step 10 in Appendix D discusses that changing control treatment at critical intersections can improve service and expedite movement of traffic. Discuss any model treatments that were

used to expedite movement of traffic through intersections, and revise the ETE report as needed.

- D. Discuss the effect on the ETE if the county specific traffic management plans were used in the analysis. Revise the ETE report as needed.

13.03-19

**ETE-3: Demand Estimation, Permanent Residents**

Acceptance Criteria: NUREG-0800, Standard Review Plan (SRP), Section 13.3, "Emergency Planning," Requirements A and H; Acceptance Criterion 11

Regulatory Basis: Appendix 4 to NUREG-0654 Section II.A.

- A. COLA, Part 5, ETE Report, Section 2.1, "Data Estimates," states that population estimates are projected to 2007 using regression analysis on County-specific projections. Discuss the regression analysis method used in the development of the county-specific population projections and include this information in a revision to the ETE report.
- B. The population growth rate between 2000 and 2007 is identified as 11.8 percent in Table 3-1, "EPZ Permanent Resident Population by Zone." Table 6-4, "Vehicle Estimates By Scenario," provides extrapolated vehicle estimates to 2015 when the construction workforce will be at its peak and indicates that the growth rate between 2007 and 2015 for residents is 26 percent. Discuss the approach used to determine the permanent resident growth rate from 2007 to 2015. Revise the ETE report as needed.
- C. COLA, Part 5, ETE Report, Section 8.1, "Transit Dependent People – Demand Estimate," identifies 259 people registered with local authorities as transit dependent or as having a special need. Table 8-1, "Transit Dependent Population Estimates," identifies 593 residents requiring transportation.
  - 1. Discuss if Table 8-1 includes the 259 residents who have registered as having a special need. Revise the ETE report as needed.
  - 2. Discuss whether any of the transit dependent residents have special needs that may require specialized transportation. Revise the ETE report as needed.

13.03-20

**ETE-4: Demand Estimation, Transient Populations**

Acceptance Criteria: NUREG-0800, Standard Review Plan (SRP), Section 13.3, "Emergency Planning," Requirements A and H; Acceptance Criterion 11

Regulatory Basis: Appendix 4 to NUREG-0654 Sections II.B.

- A. Table 3-3, "Summary of Transients by Zone," provides a total of 13,541 transients. The Comanche Peak Environmental Report (ER) Table 2.5-3, "The Current Residential and Transient Population for Each Sector 0-16 km (10 mi)," lists a current resident and transient EPZ population of 71,261 persons, and ER Table 2.5-1, "The Projected Permanent Population for Each Sector 0-16 km (10 mi) for Years 2007, 2016, 2026, 2036, 2046, and 2056," identifies 32,451 permanent residents within the 10 mile emergency planning zone (EPZ). The difference between the values in the ER indicates there are 38,810 transients in the EPZ. Discuss the difference between the transient population estimates provided. Revise the ETE report as needed.

- B. COLA, Part 5, ETE Report, Section 8.4, "Summer Camps and Retreats – Transit Demand," indicates 5 summer camps with a population of 2,020 children. Provide an estimate of the number of buses and drivers needed to support evacuation of the summer camps, and include this in a revision to the ETE report.
- C. COLA, Part 5, ETE Report, Appendix I, "Evacuation Sensitivity Studies," identifies the Granbury 4<sup>th</sup> of July Celebration as a special event with an attendance of up to 50,000 people, but Table 6-2, "Evacuation Scenario Definitions," identifies a smaller event at the amphitheater for the Scenario 11 special event analysis. Discuss whether the Granbury 4<sup>th</sup> of July Celebration should be used as the peak tourist volume special event in the analysis. Revise the ETE report as needed.

13.03-21

**ETE-5: Demand Estimation, Special Facility Population**

Acceptance Criteria: NUREG-0800, Standard Review Plan (SRP), Section 13.3, "Emergency Planning," Requirements A and H; Acceptance Criterion 11  
Regulatory Basis: Appendix 4 to NUREG-0654 Sections II.C.

- A. Table 8-4, "Special Facility Transit Demand," uses the current facility population in determining resources needed to support an evacuation. Discuss the impact on the ETE if peak populations are considered for the special facilities. Revise the ETE report as needed.
- B. COLA, Part 5, ETE Report, Section 8.3, "Special Facility Demand," states on page 8-4 that some facilities can share buses and states on page 8-9 that several buses will pick up evacuees at more than one facility.
  - 1. Discuss the basis for the assumption that facilities can share buses that are obtained through private contracting. Revise the ETE report as needed.
  - 2. Discuss the effect on the ETE if facilities cannot share buses. Revise the ETE report as needed.
- C. COLA, Part 5, ETE Report, Section 8.5, "Evacuation Time Estimates for Transit Dependent People; Activity: Mobilize Drivers," identifies 60 minutes to contact and mobilize school bus drivers and 90 minutes to contact and mobilize buses serving the transit dependent population. Discuss factors that contribute to the difference in mobilization times for school buses and buses that serve the transit dependent population. Revise the ETE report as needed.

13.03-22

**ETE-6: Demand Estimation, Emergency Planning Zone (EPZ)**

Acceptance Criteria: NUREG-0800, Standard Review Plan (SRP), Section 13.3, "Emergency Planning," Requirements A and H; Acceptance Criterion 11  
Regulatory Basis: Appendix 4 to NUREG-0654 Section II.D.

- A. Sub-areas, which are defined as Zones, are identified in Figure 3-1, "Comanche Peak Nuclear Power Plant EPZ," and are described in COLA, Part 5, ETE Report, Appendix L, "Zone Boundaries," but it is not clear that these zones encompass the entire EPZ area. Discuss whether the zones presented in Appendix L encompass

the entire area of the EPZ and include this information in a revision to the ETE report.

- B. COLA, Part 5, ETE Report, Appendix L describes the northern boundary of Zone 1D to include Highway 377, the 10-mile limit, and the north boundary of the Descordova Bend development. The northern boundary of Zone 1D, as described in Appendix L, bisects the densely populated area of Granbury which is inconsistent with the "Texas Emergency Plan – Annex D." Annex D states that the incorporated communities of Granbury and Tolar are in the Hood County portion of the 10-mile EPZ and although some parts of Granbury and Tolar are more than 10 miles from Comanche Peak, the boundary of the EPZ includes everyone living within the city limits of these two communities. Clarify the northern boundary limits for Zone 1D.
- C. The zones in Appendix L are generally bounded by roadways, geographical features, and limits of jurisdictional areas, but information is needed to clarify those zones that are described as bounded by the 10-mile limit. Clarify all zone boundaries in Appendix L that include the '10-mile limit' as part of the definition of the zone boundary. Revise the ETE report as needed.
- D. Table 8-5A, "School Evacuation Time Estimates – Good Weather," and Table 8-5B, "School Evacuation Time Estimates – Rain," identify a distance of 14 miles from Mambrino Elementary School to the EPZ boundary and 10 miles from Happy Hills Farm to the EPZ boundary. Discuss how traveling this distance through the EPZ reflects a generally radial evacuation. Revise the ETE report as needed.
- E. Provide a map that identifies the locations of special facilities and schools in a revision to the ETE report.
- F. Section 6, "Demand Estimation for Evacuation Scenarios," discusses use of 22.5 degree sectors used to establish the keyhole based areas identified in Table 6-1, "Description of Evacuation Regions." Table 6-1 includes a column titled "Central Sector," but a map that identifies these sectors is needed. Provide a map of the Comanche Peak Nuclear Power Plant EPZ with 22.5 degree sectors in a revision to the ETE report.

13.03-23

#### **ETE-7: Traffic Capacity, Evacuation Roadway Network**

Acceptance Criteria: NUREG-0800, Standard Review Plan (SRP), Section 13.3, "Emergency Planning," Requirements A and H; Acceptance Criterion 11  
Regulatory Basis: Appendix 4 to NUREG-0654 Sections III.A.

- A. COLA, Part 5, ETE Report, Section 8.5, "Evacuation Time Estimates for Transit Dependent People," (page 8-7) states that the evacuation routes were only used to compute ETE, and it is not necessary for counties to use these exact routes in the event of an emergency. Explain why the routes proposed should be considered representative of an evacuation and used to formulate the ETE. Revise the ETE report as needed.

- B. Figure 1-2, "Comanche Peak Link-Node Analysis Network," shows the nodes used in the analysis, but the nodes are not labeled to correspond to Appendix K, "Evacuation Roadway Network Characteristics." Provide a map in a revision to the ETE report that includes legible node numbers that correspond to Appendix K.

13.03-24

**ETE-8: Traffic Capacity, Roadway Segment Characteristics**

Acceptance Criteria: NUREG-0800, Standard Review Plan (SRP), Section 13.3, "Emergency Planning," Requirements A and H; Acceptance Criterion 11  
Regulatory Basis: Appendix 4 to NUREG-0654 Section III.B

- A. COLA, Part 5, ETE Report, Section 4, "Estimation of Highway Capacity – Capacity Estimation Along Sections of Highway," page 4-3, states that capacity of highway sections is a function of, among other things, percent heavy trucks. Section 3.6, "Pass-Through Demand," identifies that there has been an increase in truck traffic through the EPZ. Identify the percent heavy trucks used in the analysis for evacuation of the general public in a revision to the ETE report.

13.03-25

**ETE-9: Analysis of Evacuation Times, Methodology, Total Evacuation Times**

Acceptance Criteria: NUREG-0800, Standard Review Plan (SRP), Section 13.3, "Emergency Planning," Requirements A and H; Acceptance Criterion 11  
Regulatory Basis: Appendix 4 to NUREG-0654 Section IV.B.

- A. COLA, Part 5, ETE Report, Section 2.1 "Data Estimates," (7) states that ETE are presented for the 100<sup>th</sup> percentile which is consistent with the data presented in Section 5, "Estimation of Trip Generation Time." However, Section 7.3, "Evacuation Rates," states that the ETE does not account for stragglers. Discuss whether stragglers are included in the ETE. Revise the ETE report as needed.
- B. In Figure 5-1, "Events and Activities Preceding the Evacuation Trip," the timeline for households with commuters includes time to return home, if needed, and then evacuate. The timeline for households without commuters indicates these residents are at home. Members of households without commuters may not be at home when they become aware of the accident and may need to return home.
1. Explain why the events and activities timeline for households without commuters as represented in Figure 5-1 is different from the timeline for households with commuters.
  2. Discuss any effect this may have on the ETE calculation. Revise the ETE report as needed.
- C. The timeline for transients, also in Figure 5-1, indicates that transients do not return home, (e.g., hotel) prior to evacuating.
1. Discuss why Figure 5-1, indicates transients do not return to their residence (e.g., hotel) prior to evacuation.
  2. Discuss any effect this may have on the time for the transient population to evacuate, if they do return to their hotel prior to leaving. Revise the ETE report as needed.

13.03-26

**ETE-10: Analysis of Evacuation Times, Methodology, Transit Dependent**

Acceptance Criteria: NUREG-0800, Standard Review Plan (SRP), Section 13.3, "Emergency Planning," Requirements A and H; Acceptance Criterion 11  
Regulatory Basis: Appendix 4 to NUREG-0654 Section IV.B.

- A. COLA, Part 5, ETE Report, Section 8-1, "Transit Dependent People - Demand Estimate," identifies the need for 20 bus runs to support evacuation of the transit dependent population, but information is needed on the total number of specialized vehicles that may be required. Discuss the affect on the ETE if specialized transportation is required to support evacuation of the transit dependent people. Revise the ETE report as needed.
- B. Figure 8-2, "Proposed Transit Dependent Bus Routes," identifies bus routes 1 and 3 on roadways where access control points prevent vehicle traffic in at least one direction. Access control points 2 and 4, which are detailed in COLA, Part 5, ETE Report, Appendix G, "Traffic Management," include physical barricades that would slow inbound buses using bus routes 1 and 3. Discuss any delays expected along bus routes 1 and 3 as a result of access control points. Revise the ETE report as needed.
- C. COLA, Part 5, ETE Report, Section 10, "Evacuation Routes," states that routing of evacuees from the EPZ boundary to the reception centers should minimize travel. However, evacuees exiting the EPZ on Farm to Market (FM) roadways FM4, FM56, FM203, and State Road 144, as indicated in Figure 10-2, "Evacuation Routes for Hood County," and Figure 10-3, "Evacuation Routes for Somervell County," are not traveling toward reception centers. Discuss how evacuees exiting the EPZ on FM4, FM56, FM203, and State Road 144 get to the reception centers based on the direction of travel identified. Revise the ETE report as needed.

13.03-27

**ETE-11: Analysis of Evacuation Times, Methodology, Special Facilities**

Acceptance Criteria: NUREG-0800, Standard Review Plan (SRP), Section 13.3, "Emergency Planning," Requirements A and H; Acceptance Criterion 11  
Regulatory Basis: Appendix 4 to NUREG-0654 Section IV.B.

- A. Table 8-4, "Special Facility Transit Demand," lists special facility capacities, but uses the facility current census for the determination of resources needed to support an evacuation. Discuss whether additional resources would be required to support peak populations of special facilities. Revise the ETE report as needed.
- B. The time for 30 ambulances to mobilize is identified as 30 minutes in Section 8-5, "Evacuation Time Estimates for Transit-Dependent People," (page 8-10) but information is needed to support the basis of this estimate. Clarify whether there are 30 ambulances available to support the evacuation in a single run and discuss the logistics of mobilizing this number of ambulances to support the 30 minute response time. Revise the ETE report as needed.



13.03-28

**ETE-12: Other Requirements, Confirmation of Evacuation**

Acceptance Criteria: NUREG-0800, Standard Review Plan (SRP), Section 13.3, "Emergency Planning," Requirements A and H; Acceptance Criterion 11  
Regulatory Basis: Appendix 4 to NUREG-0654 Section V.

- A. COLA, Part 5, ETE Report, Section 12, "Confirmation Time," provides a time estimate for confirmation of the evacuation; however, the process provided is a suggested alternative. Discuss whether the counties have agreed with the ETE plans for confirmation of evacuation using a telephone survey approach. Revise the ETE report as needed.
- B. Discuss whether the time required to obtain telephone numbers of residents has been included in the time estimate. Revise the ETE report as needed.

13.03-29

**ETE-13: Other Requirements, Draft Review**

Acceptance Criteria: NUREG-0800, Standard Review Plan (SRP), Section 13.3, "Emergency Planning," Requirements A and H; Acceptance Criterion 11  
Regulatory Basis: Appendix 4 to NUREG-0654 Section V.

- A. COLA, Part 5, ETE Report, Section 9, "Traffic Management Strategy," discusses the priorities of the traffic management plan. COLA, Part 5, ETE Report, Appendix G, "Traffic Management," states that manpower and equipment shortages are likely to arise. Clarify whether State and local law enforcement have reviewed the traffic control plan. Revise the ETE report as needed.
- B. Discuss whether State and local organizations provided any comments or concerns regarding the ETE, including resources and priorities of placement of traffic control. Revise the ETE report as needed.